

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 December 2004 (29.12.2004)

PCT

(10) International Publication Number
WO 2004/112691 A3

(51) International Patent Classification⁷: **C07K 14/57, A61K 38/21**

(21) International Application Number: **PCT/US2004/015184**

(22) International Filing Date: **13 May 2004 (13.05.2004)**

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:
60/471,862 19 May 2003 (19.05.2003) US
60/554,774 19 March 2004 (19.03.2004) US

(71) Applicant (for all designated States except US): **INTERMUNE, INC. [US/US]; 3280 Bayshore Boulevard, Brisbane, CA 94005 (US).**

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BRADFORD, Williamson, Z. [US/US]; 2845 Union Street, San Francisco, CA 94123 (US). STARKO, Karen [US/US]; 1565 Bellevue Avenue, Hillsborough, CA 94010 (US).**

(74) Agent: **BORDEN, Paula, A.; Bozicevic, Field & Francis LLP, 1900 University Avenue, Suite 200, East Palo Alto, CA 94303 (US).**

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
9 September 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2004/112691 A3

(54) Title: **INTERFERON GAMMA THERAPIES FOR IDIOPATHIC PULMONARY FIBROSIS**

(57) Abstract: The present invention provides methods of treating idiopathic pulmonary fibrosis (IPF); methods of increasing survival time in an individual with IPF; and methods of reducing risk of death in an individual with IPF. The methods generally involve administering a therapeutically effective amount of IFN- γ to an individual with IPF.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/15184

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C07K 14/57; A61K 38/21
 US CL : 424/85.4; 514/2, 12; 530/351; 435/800, 975

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 424/85.4; 514/2, 12; 530/351; 435/800, 975

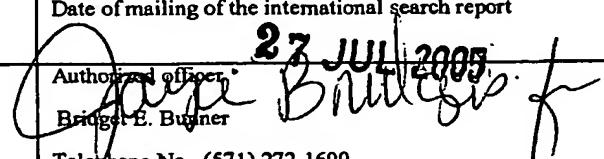
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ZIESCHE et al. A Preliminary Study of Long-Term Treatment with Interferon Gamma 1b and Low-Dose Prednisolone in Patients with Idiopathic Pulmonary Fibrosis. New Eng. J. Med. 21 October 1999, Vol 341, pages 1264-1269, see entire document, especially abstract and pages 1265-1268.	1-8, 13, 15-21, 31-43
—		_____
A		9-12, 14
X	"Idiopathic Pulmonary Fibrosis; New IPF Therapies Highlighted at European Respiratory Society Meeting". Drug Week. 22 November 2002, page 30, see entire article.	1-7, 15-21, 31-43
X	US 5,587,294 A (TAMARKIN et al) 24 December 1996 (24.12.1996), col 13-14.	31-43
X, P	KALRA et al. Interferon Gamma-1b Therapy for Advanced Idiopathic Pulmonary Fibrosis. Mayo Clin. Proc. September 2003, Vol 78., pages 1082-1087, see entire document.	1-10, 13, 15-21, 31-43

<input type="checkbox"/>	Further documents are listed in the continuation of Box C.	<input type="checkbox"/>	See patent family annex.
•	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"B"	earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search	Date of mailing of the international search report
11 July 2005 (11.07.2005)	 23 JUL 2005
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 872-9306	Authorized officer: Brigitte E. Burner Telephone No. (571) 272-1600

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/15184

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.: 22-30 and d 44
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.
No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No. PCT/US04/15184

Continuation of B. FIELDS SEARCHED Item 3:
EAST, US-PGPUBS, DIALOG, MEDLINE
search terms: idiopathic pulmonary fibrosis, interferon gamma, forced vital capacity, carbon monoxide diffusing capacity, inventors' names